

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

Claim 1-5 (Cancelled)

Claim 6 (Currently Amended) An ignition timing controller, comprising:

a crank angle detecting means for generating a crank angle pulse signal for each rotation of a predetermined angle, and for generating the pulse signal immediately before the crank angle corresponding to the top dead center of a piston of said internal combustion engine as a reference pulse signal having an aspect different than an aspect of non-reference crank angle pulse signals, said crank angle detecting means being rotated in association with a crank shaft of an internal combustion engine; and

an ignition control means for controlling ignition timing of said internal combustion engine in accordance with said crank angle pulse signal;

wherein said ignition control means detects, in accordance with said crank angle pulse signal and said reference pulse signal, a one rotation period from when cranking of said internal combustion engine is started to when said crank shaft has completed one rotation, and instructs spark discharge of an ignition plug of said internal combustion engine for the ignition timing in accordance with a reference crank angle pulse signal generated immediately after said reference pulse signal in the rotation period, [[and]]

wherein said ignition control means instructs electric supply to an ignition coil in accordance with said reference pulse signal before the instruction of the spark discharge of said ignition plug in the one rotation period,

wherein said crank angle detecting means comprises:

a rotor rotated in association with the crank shaft of said internal combustion engine and having a plurality of detection portions to be detected at equivalent angle intervals on the outer circumference; and

a pickup arranged at the vicinity of the outer circumference of said rotor, for generating said crank angle pulse signal when said plurality of detection portions each pass therethrough,

wherein a selected detection portion among said plurality of detected portions is located immediately before the crank angle corresponding to the top dead center of the piston of said internal combustion engine, and is set to generate said reference pulse signal, and

wherein the respective rear end positions of all of the plurality of detection portions are located at equivalent angle intervals in the rotating direction of said rotor, and

the length from the rear end position to the front end position of said selected detection portion is different than lengths from rear end positions to front end positions of non-selected detection portions among said plurality of detection portions.

Claim 7 (Cancelled)

Claim 8 (Cancelled)

Claim 9 (Currently Amended): The ignition timing controller according to claim 6 [[or 8]],

wherein said crank angle pulse signal including said reference pulse signal is constructed by a negative pulse and a positive pulse constituting a pair, and

wherein said negative pulse is generated correspondingly to the front end of each of said plurality of detection portions, and said positive pulse is generated correspondingly to the rear end of each of said plurality of detection portions.

Claim 10 (Previously Presented): The ignition timing controller according to claim 9, wherein said ignition control means discriminates said reference pulse signal in accordance with the magnitude of a ratio of a generated interval between two of said negative pulses and a generated interval between two of said positive pulses.

Claim 11 (Previously Presented): The ignition timing controller according to claim 9, wherein in the one rotation period, said ignition control means instructs an electric supply to said ignition coil when a value obtained by dividing the generated interval between said negative pulses by the generated interval between said positive pulses is smaller than one, and wherein said ignition control means also instructs the spark discharge of said ignition plug when the value obtained by dividing the generated interval between said negative pulses by the generated interval between said positive pulses is greater than one.